

## PATENT SPECIFICATION

619,165



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Index at acceptance:—Class 81(ii), Blh.

## PROVISIONAL SPECIFICATION

## An Improved Surgical Material

I, JOHN THOMAS GILLISON, a British Subject, of c/o W.S. & E.P. Trading Company, 5 and 6, Coventry Street, London, W.1, do hereby declare the nature of this invention to be as follows:—

The present invention relates to an improved surgical material such as may be used, for example, as a haemostatic agent like gauze or cottonwool or foam or similar product, i.e., the control of bleeding or for placing between severed body tissues to prevent them from growing together, the material being absorbed by the body in due course.

It is known that alginate salts and products produced therefrom are absorbable by body tissues.

According to the present invention the material comprises an alginate salt formed into a coherent body and treated, either before or after formation, with one or more of (a) penicillin or a derivative of penicillin, (b) a sulpha drug, and (c) an antiseptic of the cresyl or diazo series of drugs.

The surgical material may be formed into strips, tubes, ribbons or sutures, gauzelike or woolly in form, or indeed any other required form.

Thus, for example, sutures may be formed by drawing out filaments from a viscous mass composed of an alginate salt and immersing the filaments in a bath of penicillin or a derivative thereof together with a coagulating substance such as tissue extract and/or a calcium salt. The filaments can be woven, braided or knitted to form a material of the required strength.

Alternatively, the alginate salt may be

made into a viscous solution with the penicillin and the filaments drawn out from this viscous solution before further treatment.

An antiseptic or bacteriostatic compound, such as flavine, may be applied to the filaments after they are formed or may be added to the solution from which the filaments are drawn.

Sheets or other bodies of the material may be made in the same way and are suitable for application to damaged or severed body tissue while healing, or for application between body tissues to allow such tissues to heal without adhering to one another, the applied material being absorbed by the tissue in due course.

Such a surgical material may be sterilised in the normal way without harm.

Such an alginate compound can be sterilised by heat without destroying its physical properties.

An alginate salt, e.g., sodium alginate, when brought into contact with the calcium salt of penicillin or its derivatives, undergoes immediate clotting. Thus it is possible to inject calcium-penicillin and sodium alginate to form a clot, which, on gradual absorption, will release penicillin without suffering in its action. Or, in another example, a film of calcium-penicillin alginate can be created on tissue surfaces.

Dated this 23rd day of November, 1946.

Agent for the Applicant,

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## COMPLETE SPECIFICATION

## An Improved Surgical Material

I, JOHN THOMAS GILLISON, a British Subject, of c/o W.S. & E.P. Trading Company, 5 and 6, Coventry Street, London, W.1, do hereby declare the

nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

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The present invention relates to an improved surgical dressing such as may be used, for example, as a haemostatic agent like gauze or cottonwool or foam or 5 similar product, i.e. the control of bleeding or for placing between severed body tissues to prevent them from growing together, the material being absorbed by the body in due course.

10 It is known that alginate salts and products produced therefrom are absorbable by body tissues.

According to the present invention a surgical dressing comprises an alginate 15 salt formed into a coherent body and treated with penicillin.

Preferably a sodium salt of penicillin is added to calcium alginate and if desired other chemo-therapeutic agents such as 20 chlorocresol and/or a sulphonamide such as sulphathiazol are also added.

The dressing may be formed into strips, 25 films, tubes, ribbons or sutures, gauze-like or woolly in form, or indeed any other required form.

Thus, for example, filaments may be formed by drawing out fibres from a viscous mass composed of an alginate salt and immersing the filaments in a bath of 30 equal volumes of (a) penicillin or a derivative thereof of suitable potency (b) a coagulating substance such as tissue extract and/or a calcium salt, (c) a 2% solution of chlorocresol and (d) a 5% solution of sulphathiazol. The filaments can be woven, braided, spun, garnetted or knitted to form a coherent body of the required strength.

Alternatively, the alginate salt may be 40 made into a viscous solution with the penicillin and the filaments drawn out from this viscous solution before further treatment.

An antiseptic or bacteriostatic compound, 45 such as an acridine derivative or eusol, may be applied to the filaments after they are formed or may be added to the solution from which the filaments are drawn.

50 Sheets or other bodies of the material

may be made in the same way and are suitable for application to damaged or severed body tissue while healing, or for application between body tissues to allow such tissues to heal without adhering to 55 one another, the applied material being absorbed by the tissue in due course.

Such a surgical material may be sterilised in the normal way without 60 harm.

Such an alginate compound can be sterilised by heat without destroying its physical or chemical properties.

An alginate salt, e.g. calcium or sodium alginate, when brought into contact with 65 the calcium salt of penicillin or its derivatives, undergoes immediate clotting. Thus it is possible to inject calcium-penicillin and sodium alginate to form a clot, which, on gradual absorption, will 70 release penicillin. Or, in another example, a film of calcium-penicillin-alginate can be created on tissue surfaces.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A surgical dressing comprising an alginate salt formed into a coherent body 80 and treated with penicillin.

2. A dressing as claimed in claim 1, comprising calcium alginate treated with a calcium or sodium salt of penicillin.

3. A dressing as claimed in either of the preceding claims, treated with an antiseptic agent such as a derivative of acridine.

4. A dressing as claimed in either of claims 1 or 2, treated with a sulphonamide compound or a chemo-therapeutic substance.

5. A surgical dressing substantially as described herein.

Dated this 22nd day of December, 1947.

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49, Chancery Lane, London, W.C.2.

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